

REMARKS

The present Amendment amends claims 1, 2, 4, 12-14 and 16, and leaves claims 3, 5-11 and 15 unchanged. Therefore, the present application has pending claims 1-18.

Claims 2-10 stand rejected under 35 USC §112, first paragraph as failing to comply with the enablement requirement. Particularly the Examiner objects to the language in claim 2 wherein the phrase "relatively small" is used. Amendments were made to claims 2-10 to eliminate the use of the phrase "relatively small". Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Claims 1-18 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention. Various amendments were made throughout claims 1-18 to bring the claims into conformity with the requirements of 35 USC §112, second paragraph rejection. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

Various amendments were made to the claims to overcome the objections noted by the Examiner in paragraphs 5-8 of the Office Action.

The Examiner's cooperation is respectfully requested to contact Applicants' Attorney by telephone should any further indefinite matter be discovered so that appropriate amendments may be made.

Claims 1-18 stand rejected under 35 USC §102(b) as being anticipated by Nahum (WIPO Patent Publication No. WO 01/80013); and claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Nahum and

Barnett (U.S. Patent No. 6,971,016). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now recited in claims 1-18 are not taught or suggested by Nahum or Barnett whether taken individually or in combination with each other or any of the other references of record. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

The features of the present invention as now more clearly recited in the claims are directed to a data transfer method in a computer system including plural computers, plural memory devices, a relay device which connects the computers and the memory devices, and a management device which manages the computers, the memory devices, and the relay device. The management device sets virtual memory areas of the memory devices for the plural computers and holds information on contents of the setting as first information. The relay device holds second information which is created based upon the first information. The virtual memory areas correspond to memory areas in the respective memory devices or a memory area formed by combining memory areas in the memory devices.

Unique according to the present invention is that the relay device selects one virtual memory area based on the second information, and if the selected virtual memory area is formed by combining memory areas in different memory devices and if an unused memory area exists in the memory device containing the selected one virtual memory area, the relay device performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected one

virtual memory area to the unused memory area of the memory device containing the selected one virtual memory area.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by Nahum or Barnett whether taken individually or in combination with each other as suggested by the Examiner in the Office Action.

Nahum teaches a distributed architecture for the virtualization of storage capacity in a Storage Area Network (SAN) and for the management of virtual and physical memory is described. Nahum provides a virtualization software computer program consisting of two portions, namely virtualization and translation, each portion residing in a different location but both portions operating interactively. A SAN coupling an array of hosts via a Network Switch to an array of storage devices is equipped with a Storage Virtualization Manager (SVM). The SVM as taught by Nahum operating the virtualization computer software handles physical storage capacity virtualization and metadata management. The Network Switch routes storage I/O operations between the hosts and the storage devices, while the translation software resides in a processor, in either a host or elsewhere on the SAN. Although the Network Switch and the SVM decouple tasks to relieve load and Switch, the processor(s) operating the virtualization program and the SVM prevent bottlenecks.

At no point is there any teaching or suggestion in Nahum of the above described features of the present invention wherein if the selected virtual memory area is formed by combining memory areas in different memory devices and if an unused memory area exists in the memory device containing the selected one virtual memory area, the relay device performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected one virtual memory area to the unused memory area of the memory device containing the selected one virtual memory area. This operation is performed according to the present invention to make more efficient use of the memory areas of the memory devices of the present invention and to reduce the processing load of the relay so that a smaller number of memory devices are accessed when possible. These features of the present invention are not possible in Nahum.

Thus, Nahum does not teach or suggest that the relay device selects one virtual memory area based on the second information, and if the selected virtual memory area is formed by combining memory areas in different memory devices and if an unused memory area exists in the memory device containing the selected one virtual memory area, the relay device performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected one virtual memory area to the unused memory area of the memory device containing the selected one virtual memory area as recited in the claims.

Therefore, as is quite clear from the above, the features of the present invention as now more clearly recited in each of the claims are not taught or

suggested by Nahum whether taken individually or in combination with any of the other references of record. Accordingly, reconsideration and withdrawal of the 35 USC §102(b) rejection of claims 1-18 as being anticipated by Nahum is respectfully requested.

The features of the present invention as now more clearly recited in each of the claims shown above to not be taught or suggested by Nahum are also not taught or suggested by Barnett. Therefore, combining the teachings of Nahum and Barnett in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Barnett is merely relied upon for an alleged teaching of a memory area in the relay device. However, this alleged teaching of Barnett does not supply the deficiencies of Nahum relative to the features of the present invention as now recited in the claims. In fact at no point in Barnett is there any teaching or suggestion of the above described features of the present invention as recited in the claims.

Thus Barnett, the same as Nahum, does not teach or suggest that the relay device selects one virtual memory area based on the second information, and if the selected virtual memory area is formed by combining memory areas in different memory devices and if an unused memory area exists in the memory device containing the selected one virtual memory area, the relay device performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected one virtual memory area to the unused memory area of the memory

device containing the selected one virtual memory area as recited in the claims.

Therefore, being that both Nahum and Barnett suffer from the same deficiencies relative to the features of the present invention as recited in the claims, the combination of Nahum and Barnett still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claim 10 as being unpatentable over Nahum in view of Barnett is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-18.

In view of the foregoing amendments and remarks, applicants submit that claims 1-18 are in condition for allowance. Accordingly, early allowance of claims 1-18 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (501.43144X00).

Respectfully submitted,

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